

Quality Informational Guide for Automatic Fire Detection and Alarm Systems



FOREWORD

This information is intended to provide guidance to the local Authority Having Jurisdiction (AHJ) for establishing programs to ensure highly reliable fire detection and alarm systems in his or her community.

A recommended model ordinance is included within this document to assist AHJ through improving the reliability of existing systems.

This information was prepared by the Signaling Section of the National Electrical Manufacturers Association (NEMA – www.nema.org), and the Automatic Fire Alarm Association (AFAA – www.afa.org) in cooperation with the Residential Fire Safety Institute (formerly Operation Life Safety) (RFSI – www.firesafehome.org). In addition, RFSI wishes to acknowledge contributions to this document made by the following fire service officials:¹

- Fire Marshal Martin Fisher, Boston, Massachusetts Fire Department.
- Deputy Chief Julius E. Halas, Sarasota, Florida Fire Department.
- Major William E. Barnard, Prince George's County, Maryland Fire Department.

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¹*At time of initial publication*

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INTRODUCTION

AUTOMATIC FIRE DETECTION AND ALARM SYSTEMS, when intelligently combined with the other elements of an overall fire protection plan, have the potential to significantly reduce property damage, personal injuries and loss of life from fire in buildings.

To be effective, fire detection and alarm systems must be:

- PROPERLY DESIGNED
- PROPERLY INSTALLED
- PROPERLY MAINTAINED

In addition to the criteria at left, active involvement by the local Authority Having Jurisdiction (AHJ) is necessary to

ensure quality and reliability in a buildings' automatic detection and alarm system.

This information is intended to provide guidance to the local Authority having Jurisdiction (AHJ) for establishing programs to ensure highly reliable fire detection and alarm systems in his or her community.

ELEVATING THE QUALITY OF OLDER INSTALLATIONS

By definition, a "Nuisance Alarm" is any alarm caused by mechanical failure, malfunction, improper installation, or lack of proper maintenance; or any alarm activated by a cause that cannot be determined. In this publication, the term is used to describe a situation where the fire service is dispatched to a building and/or the occupants are evacuated from a building in response to the

activation of an automatic fire alarm system when there is no actual fire. In this publication, the term "Nuisance Alarm" encompasses both unwanted alarms and unnecessary alarms.

Examples of unwanted or unnecessary alarms include:

- EQUIPMENT MALFUNCTIONS
- ELECTRICAL DISTURBANCES, TRANSIENTS AND LIGHTING
- THE MISCHIEVOUS OPERATION OF A MANUAL FIRE ALARM BOX
- SMOKE DETECTOR ACTIVATION FROM TOBACCO SMOKE OR FROM COOKING

Nuisance alarms are disruptive to building occupants. Over time, they might cause building occupants to ignore all alarms. Failure to respond to actual alarms can have disastrous consequences.

Nuisance alarms are costly to the fire services as they absorb valuable fire department resources.

Nuisance alarms are demoralizing and potentially dangerous to fire fighters and to the public.

The first order of business in elevating the effectiveness of fire detection and alarm systems is to eliminate or significantly reduce nuisance alarms from existing systems.

The National Electrical Manufacturers Association (NEMA) and the Automatic Fire Alarm Association, (AFAA) have committed resources to support efforts by the local AHJ to reduce the occurrence of nuisance alarms.

If you have a nuisance alarm problem, it can only be fixed by personal involvement!

WHAT CAUSES NUISANCE ALARMS

- **Most are initiated by smoke detectors.**

Lack of smoke detector maintenance allows for the accumulation of dust and dirt. Over time, this will make smoke detectors more sensitive. Tobacco smoke that would not normally activate a clean detector may be sufficient to cause a dirty detector to alarm.

Improper application. Smoke detectors should not be installed in locations such as kitchens, furnace rooms, loading docks or rooms with fireplaces where smoke or steam can be expected under normal conditions. In most instances, misapplication of smoke detectors will cause problems from the very first day a system is commissioned.

Component degradation makes detectors more susceptible to electrical transients or radio frequency interference from cellular telephones or radio transmitters.

Some early smoke detectors manufactured before March 3, 1986 lacked adequate protection against insect infestation. These detectors can be seasonably troublesome in environments where small spiders or mites are present.

- **Electrical disturbances from storms and nearby lightning strikes can cause surges on the utility company's power lines, which affect fire alarm panel and automatic detector operation.**
- **Mischief or vandalism from misguided individuals who operate manual fire alarm boxes for amusement.**

ELIMINATING NUISANCE ALARMS

Nuisance alarms from smoke detectors can almost always be eliminated with the following actions.

Where detectors are installed in improper locations, relocate them. The following references from the 1999 edition of the NFPA 72 National Fire Alarm Code, lists conditions where the use of smoke detectors should be avoided:

8-1.4.2 Smoke detectors shall not be located within kitchens or garages, or in other spaces where temperatures can fall below 40°F (4°C) or exceed 100°F (38°C). Smoke detectors shall not be located closer than 3-ft. (0.9m) horizontally from:

- The door to a kitchen.
- The door to a bathroom containing a tub or shower.
- The supply registers of a forced air heating or cooling system, and outside of the airflow from those registers.

Exception: Detectors specifically listed for the application.

2-3.6.1.1* Smoke detectors shall be installed in areas where the normal ambient conditions are not likely to exceed the following range of environmental conditions:

- A temperature below 32°F (0°C)
- A temperature above 100°F (38°C)

- Relative Humidity above 93 percent
- Air velocity greater than 300 fpm (1.5 m/sec.)

Exception: Detectors specifically designed for use in ambient conditions beyond the limits of 2-3.6.1.1 (1) through (4) and listed for the temperature, humidity, and air velocity conditions expected.

2-3.6.1.2* To avoid nuisance alarms, the location of smoke detectors shall take into consideration, normal sources of smoke, moisture, dust or fumes, and electrical or mechanical influences.

2-3.6.1.3 Detectors shall not be installed until after the construction clean up of all trades is complete and final.

By adhering to these requirements nuisance alarms caused by the following can be eliminated:

TABLE A-2-3.6.1.2(A) COMMON SOURCES OF AEROSOLS, PARTICULATE MATTER AND MOISTURE

MOISTURE	COMBUSTION PRODUCTS AND FUMES
- Live steam	- Cooking equipment
- Steam tables	- Ovens
- Showers	- Dryers
- Humidifiers	- Fireplaces
- Slop sink	- Exhaust hoods
- Humid outside air	- Cutting, welding and brazing
- Water spray	- Machining
ENGINE EXHAUST	- Paint spray
- Gasoline forklift trucks	- Curing
- Diesel trucks and locomotives	- Chemical fumes
- Engines not vented to the outside	- Cleaning fluids
HEATING ELEMENT WITH ABNORMAL CONDITIONS	- Excessive tobacco smoke
- Dust accumulation	- Heat-treating
- Improper exhaust	- Corrosive atmospheres
- Incomplete combustion	- Dust or lint
	- Linen/bedding handling
	- Sawing, drilling, and grinding
	- Pneumatic transport
	- Textile and agricultural processing

Sources of Electrical and Mechanical influences on Smoke Detectors.

TABLE A-2-3.6.1.2(B) SOURCES OF ELECTRICAL AND MECHANICAL INFLUENCES ON SMOKE DETECTORS

ELECTRICAL NOISES AND TRANSIENTS

- Vibration or shock
- Radiation
- Radio Frequency
- Intense Light
- Lightning
- Electrostatic Discharge
- Power Supply

AIR FLOW

- Gusts
- Excessive Velocity

In some instances, substituting a smoke detector that utilizes a different detection technology can eliminate a nuisance alarm problem. For example;

Photoelectric smoke detectors are less likely to alarm from rapid air changes or gusts.

Therefore, replacing the ionization type detector with a photoelectric type detector might eliminate nuisance alarms from an ionization detector installed in a parking garage elevator lobby.

Ionization detectors are less like to alarm from exposure to stray radio frequency interference. Therefore, replacing the photoelectric type detector with an ionization type detector might eliminate nuisance alarms from photoelectric detectors installed too close to a source of radio frequency interference.

Dirty smoke detectors must be cleaned.

Programs should be established to clean detectors that are installed in dirty locations on a regular scheduled basis. In normal environments, smoke detectors should be visually inspected annually, and properly cleaned when sensitivity testing as required by NFPA 72, reveals a shift in detector sensitivity.

Alarm Verification, a feature that is listed by

Underwriters Laboratories, has been effective in eliminating nuisance alarms from smoke detectors in many installations. With Alarm Verification, an actuated smoke detector is required to confirm alarm conditions within a given time period after being automatically reset, in order to be accepted as a valid alarm initiation signal. Alarm Verification has proven to be an effective technique for filtering out smoke detector nuisance alarms from such transient conditions as radio frequency interference, electrical disturbances and random tobacco smoke. Alarm Verification is a standard feature in most new fire alarm control units, and can typically be retrofitted into older existing system.

Some systems designed in the late 1990's utilize new technologies that have demonstrated effectiveness in reducing nuisance alarms. Multiple sensors within a single detector, sophisticated software algorithms operating on a single sensor, and detectors using both multiple sensors and software driven signal processing are now available from most manufacturers. These detectors are designed to reduce nuisance alarms without significantly sacrificing alarm response.

If a lightning strike is powerful enough and close enough, regardless of the available protection, it can cause a nuisance alarm. There are, however, techniques for significantly reducing these kinds of nuisance alarms.

If circuits from a fire alarm system exit and re-enter a building, (such is the case in a "campus" cluster of buildings protected by a system with a common control unit) whether they are installed overhead or under ground, whether the wiring is shielded or non-shielded, in a raceway or direct burial, they must be protected. Contact your manufacturer for information on circuit protection devices specifically designed for use with fire alarm initiating device, notification appliance and signaling line circuits. This protection should be installed where circuits exit and enter a building. Circuit protection installed within the fire alarm control unit is not as effective as protection

installed remotely (where the circuits enter and exit the building). Once high energy enters the control equipment enclosure it is usually too late to avoid equipment damage and the subsequent unwanted alarms.

Protecting circuits that exit and enter a building is critical. Protecting the AC circuit that supplies power to the fire alarm panel may also be necessary in situations where power surges or "spikes" are known to occur. If the person, or company who maintains a system that is prone to nuisance alarms from electrical disturbances needs guidance in obtaining transient protection equipment for AC circuits, advise them to contact NEMA or AFAA.

When installing circuit protection, the importance of a connection to a good unified earth ground cannot be overemphasized. If the energy from a lightning strike is to be kept out of the fire alarm control unit, it needs an alternate path of travel. That path is a unified earth ground. A good general rule is that the circuit protection devices should be connected to the same ground as the telephone or electrical service with a #10 gauge or larger wire.

With proper protection, nuisance alarms from electrical storms or electrical disturbances will be minimal, or non-existent.

Nuisance alarms from mischievous operation of manual fire alarm boxes can be dealt with in several ways.

Cover assemblies that contain a battery and a warning horn are available to fit over a manual fire alarm box. When the cover is lifted to gain access to the manual fire alarm box, the warning horn sounds. This has proven to be an effective deterrent to mischievous nuisance alarms in many installations.

Use of the cover and horn combination is somewhat controversial. Exercise care, and use only covers UL Listed for this type of application. If the person or company who maintains a system

that is prone to nuisance alarms from the mischievous operation of manual fire alarm boxes needs guidance in obtaining additional information, contact NEMA or AFAA. (See Appendix B)

Dealing with mischievous nuisance alarms from occupancies such as college dormitories or asylums where the patients are not restrained, requires very proactive involvement from the local AHJ.

In some instances, evacuating the building after a nuisance alarm and keeping the building unoccupied for several hours while "investigating the cause of the alarm" will motivate the residents to police their own dwellings and common areas to prevent future occurrences. In severe situations, requiring the occupants to post a 24-hour fire watch, or imposing fines on all occupants of a dwelling unit can be an effective remedy.

Relocating a manual fire alarm box, which has been a source of nuisance alarms to an acceptable location where it can be more closely supervised, is sometimes possible.

Some early designs of fire alarm pull boxes contained a mercury switch, which could be activated by vibration. Replacing these older style with boxes that contain a snap action or push button switch is a solution to this problem.

Other, more obscure causes of nuisance alarms can be from rate of rise heat detectors and sprinkler water flow switches.

Rate of rise heat detectors installed in locations where there are sudden extreme changes in temperature can be a source of nuisance alarms. Locations where the use of rate of rise heat detectors should be avoided include:

- **Over ovens in kitchens**
- **Furnace rooms**
- **Incinerator rooms**
- **Rooms with pottery kilns**
- **Close to hot air registers and in outdoor entrance ways**
- **Near loading docks**

If a rate of rise detector that is causing nuisance alarms can't be relocated away from the source of fluctuating temperatures, it should be replaced with a fixed temperature type heat detector.

Sprinkler water flow switches monitored by fire alarm systems are occasional sources of nuisance alarms if the switches have a retard period that is adjusted for too brief a period of time. The retard mechanism in a water flow switch guards against hammers or water surges in the piping from operating the switch and causing a nuisance alarm. With a retard mechanism, there must be a sustained flow of water (from an open sprinkler head) before the flow switch will activate. If a water flow switch is the source of a nuisance alarm, the delay time of the retard should be extended. (Normal retard time is approximately 30-45 seconds.)

Essential to eliminating the occurrence of nuisance alarms is identifying the appropriate cause. Which automatic detector, manual fire alarm box or sprinkler water flow initiated the alarm? This is not an easy task. End users are seldom trained in the operation of their fire alarm system. Their first response is typically to reset the control unit, which in turn can reset the initiating device. The proper response is to silence the audible alarm and identify the cause prior to resetting the system. Fire fighters responding to a nuisance alarm rarely have the luxury of time, to spend searching for the culprit device.

The AHJ needs the cooperation of responding fire companies to assure accurate record keeping. In addition to records at fire headquarters, an alarm log at the protected premises is strongly recommended. Records should indicate the specific alarm-causing device, clearly identified by location within the building, and the date/time of activation. Nuisance alarms are sometimes related to the time of day. For example, the changeover of HVAC system from night to day settings can set into motion events that result in nuisance alarms. Simple record keeping can occasionally assist in determining the source of a nuisance alarm.

BEGINNING THE ELIMINATION PROCESS

The following is a step-by-step process, which, if complied with, will significantly reduce the occurrence of nuisance alarms.

- **Identify the major equipment suppliers in your jurisdiction**

The name of the system supplier can usually be found on or in the system control unit.

For assistance, contact NEMA or AFAA.

(See Appendix B)

- **Target your top 20**

Identify the twenty fire detection and alarm systems in your jurisdiction that generate the highest number of nuisance alarms.

- **Meet with suppliers**

Advise them that you support a balanced approach to fire safety that includes detection, notification and suppression. Also, advise them that a small but very-vocal group within the fire service community are opposed to detection and alarm systems in buildings due to the perception of an unacceptably high rate of nuisance alarms. Tell them that by working together, the fire service and the detection and alarm industry have been successful in solving nuisance alarm problems.

- **Provide data**

Document the number of nuisance alarms from each system within the past year.

Document any other known problems and provide as much information as possible including dates and times.

- **Building owners**

Advise building owners of the inspection, testing and maintenance requirements contained in **ANSI/NFPA 101 Life Safety Code, Chapter 1 Section 1-7.1**. Whenever or wherever any device, equipment, system, condition, arrangement, level of protection, or any other feature is required for compliance with the provisions of this *Code*, such device, equipment, system, condition, arrangement,

level of protection, or other feature shall thereafter be permanently maintained unless the *Code* exempts such maintenance.

- **Suppliers walk-through**

Arrange for suppliers to perform a walk-through of their troublesome installations, and require a formal written analysis on each.

If feasible, assign one of your staff members to each walk-through.

Repairs to systems that are generating nuisance alarms should not be expensive, however, there may be some cost to the building owner.

One way to ensure cooperation from the building owners with troublesome systems is to develop an ordinance that imposes fines for nuisance alarms. Fines can be waived or used to defer the cost of system repairs.

A sample ordinance is included in this booklet. The purpose of the fine is not to generate revenue. The purpose of the fine is to reduce the occurrence of nuisance alarms.

After the twenty most troublesome systems have been repaired, the next twenty can be addressed.

LONG TERM QUALITY ASSURANCE

As the local authority having jurisdiction, it's reasonable to expect companies responsible for the design, installation, inspection testing and maintenance of fire detection and alarm systems are qualified. To ensure the highest degree of professionalism from companies participating in the fire alarm industry in your jurisdiction, require that the following individuals be NICET certified.

- **System Designers**
- **System Installers**
- **Technicians**
- **Individuals Responsible for System Testing and Maintenance**
- **System Salespeople**

NICET - National Institute for Certification in Engineering Technologies is sponsored by the National Society of Professional Engineers.

By evaluating experience and by examination, NICET certifies the competency of engineering technicians and engineering technologists in a variety of disciplines, including Fire Alarm Systems.

Examinations are conducted by NICET in over one hundred locations, four times each year. The exams test proficiency in the following areas.

- **Basic Fire Alarm Systems**
- **Basic Wiring**
- **Periodic Testing**
- **Basic Working Drawings**
- **Installation Practices**
- **Plans Specifications and Contracts**
- **Fundamentals of Physical Science**
- **Fire Protection Plans & Symbols**
- **Electrical Installation Standards**
- **Supervision and Supervisory Service**
- **Detector Spacing**
- **System Acceptance & Periodic Tests**
- **Specifications & Cost Estimates**
- **Building Codes**
- **Governmental Agencies**
- **Remote Station Protective Signaling Systems**
- **Fundamentals of Mathematics**
- **Basic Communications Skills**
- **Basic Metric Units and Conversions**
- **Household Fire Warning Systems**
- **Basics of System Layout**
- **Basic Fire Alarm Systems**
- **Detection Methods**
- **Power Supplies**
- **Construction Plans**
- **Insurance Authorities & Their Requirements**
- **Protected Premises Fire Alarm Systems**

- Proprietary Supervising Station Systems
- Manual Fire Alarm Systems and Guard's Tour Service
- Smoke Sensing Fire Detectors
- Fire Alarm Systems for Central Station Service
- Heat Sensing Fire Detectors
- Flame Sensing Fire Detectors
- Alarm Notification Appliances
- Correspondence and Reports
- Signal Processing
- Fire Alarm System Maintenance
- Emergency Evacuation Signal
- Surveys for Fire Detection Systems
- Prepare as Built Drawings
- Supplementary Circuits
- Basic Electronics - Styles and Classes of Circuits
- Transient & RFI/EMI Protection
- Multiplexing
- Presentations and Reports
- Low Power Radio (Wireless) Fire Alarm Systems
- System Features for Hostile Environments
- Hazard Analysis
- Special Protection
- Public Fire Alarm Reporting Service
- Contract Requirements & Interpretations
- Smoke Control Systems
- NFPA Codes and Standards
- Devices, Appliances & Components
- Basic Electricity
- Sprinkler, Waterflow & Supervisory Device
- Basics of Signal Transmission
- Emergency Voice/Alarm Communications

- Surveys for Fire Alarm & Detection Systems
- Fire Alarm System Wiring Combination Systems
- Shop and Riser Drawings
- Principals of Smoke Movement in Buildings
- Basic Principals of Combustion
- System & Component Compatibility
- Addressable Systems
- Interconnection with Existing Systems
- Off Premises Transmission Circuits
- Automatic Fire Detector Spacing
- System Reliability
- Avoidance of Nuisance Alarms
- Requirements for Listing
- Project Scheduling and Coordination
- Bid Invitation Package and Bid Proposal
- Computer/Microprocessor Based Fire Alarm Systems

It is not unreasonable to expect individuals employed in fire detection and alarm industry to demonstrate a minimum level of competency in the work elements listed above.

The following jurisdictions require NICET certification:

- THE STATE OF ALASKA
- THE CITY OF BOSTON, MASSACHUSETTS
- THE STATE OF DELAWARE
- THE STATE OF LOUISIANA
- THE STATE OF MICHIGAN
- THE STATE OF MONTANA
- THE CITY OF PHILADELPHIA, PENNSYLVANIA
- THE STATE OF SOUTH CAROLINA
- THE STATE OF TEXAS

The following jurisdictions recognize such requirements and reference them as a method of demonstrating qualifications:

• **THE STATE OF CALIFORNIA**

For more information on NICET certification contact:

**THE NATIONAL INSTITUTE FOR
CERTIFICATION IN ENGINEERING
TECHNOLOGIES (NICET)**

1420 King Street

Alexandria, VA 22314-2715

(703) 684-2835 or www.nicet.org

For copies of model legislation to require NICET certification, contact the Automatic Fire Alarm Association. (*See Appendix B*)

UL CERTIFICATION PROGRAMS

The National Fire Protection Association (NFPA) publishes several codes and standards.

The following have specific requirements for the design, installation, and maintenance of fire detection and alarm systems:

NFPA 72, National Fire Alarm Code

**NFPA 70, National Electrical Code,
Article 760: Fire Alarm Systems**

Underwriters Laboratories (UL) "UUJS" program provides a method to ensure that fire detection and alarm systems are designed, installed, and maintained in compliance with NFPA codes.

UL works with companies listed (authorized) to issue certificates for a particular type of signaling system. Installations are inspected and verification is obtained, that the systems have been designed, installed and are being maintained in compliance with NFPA Codes and Standards.

Before a company is "UUJS" listed by UL it is subjected to a thorough examination by UL. A UL inspector visits the Alarm Company, which is applying for the listing to assure that company personnel are proficient with NFPA Codes and Standards. The UL inspector observes the com-

pany's service dispatching operation with regard to the administration process and record keeping and the availability of twenty-four hour service. The adequacy of the company's spare parts inventory is also reviewed and the UL inspector visits several of the company's actual installations.

A listed company does not have to certify every one of its installations.

On a continuing basis, a UL inspector randomly visits UL certified systems to confirm the quality of the alarm company's inspection process.

Alarm companies discovered by the UL inspector to be incorrectly certifying systems risk having their listing suspended.

Authorities having jurisdiction can access a file at Underwriters Laboratories via a computer and modem to confirm that a specific system is certified.

Requiring that all new Fire Detection and Alarm Systems in your jurisdiction are UL Certified tends to ensure a higher standard of installation and ongoing maintenance.

For more information contact:

UNDERWRITERS LABORATORIES

333 Pfingsten Road

Northbrook, IL 60062

(847) 272-8800

For copies of model legislation to require UL certified installations, contact the Automatic Fire Alarm Association. (*See Appendix B*)

TRAINING PROGRAMS

Automatic Fire Detection and Fire Alarm Systems, is a training program developed by the Signaling Protection and Communications Section of the National Electrical Manufacturers Association (NEMA 3SB), and the Automatic Fire Alarm Association (AFAA). This two-day basic seminar is designed for fire and building officials involved in plan review and/or inspections, installers, sales and service personnel; and others responsible for automatic fire detection and fire

alarm systems. The seminar includes segments on the following:

- **Organizations involved in promulgating the codes and standards;**
- **Basic fundamentals of fire alarm systems;**
- **Types of initiating devices (manual and automatic);**
 - How they work
 - Proper application in accordance with the NFPA Codes and Standards
- **Types of alarm notification appliances (audible, visible, speakers, etc.);**
 - Proper application in accordance with the NFPA Codes and Standards

- **Fire safety control functions (door release, fan shutdown, etc.);**
 - How they interface with the fire alarm system
- **Installation requirements for the wiring of fire alarm systems in accordance with the applicable sections of the National Electrical Code (NEC);**
- **Acceptance testing;**
- **Inspection, periodic testing and maintenance;**

For more information on the availability of a training program near your jurisdiction, contact the Automatic Fire Alarm Association. (*See Appendix B*)

- APPENDIX A -

REFERENCED PUBLICATIONS

NFPA 72 the National Fire Alarm Code, 1999 edition

NFPA 70 the National Electric Code, 1999 edition

- APPENDIX B -

CONTRIBUTORS AND ENDORSERS

THE AUTOMATIC FIRE ALARM ASSOCIATION (AFAA)

**PO Box 951807
Lake Mary, FL 32795-1807
(407) 322-6288
www.afaa.org**

THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

**Signaling Section
1300 North 17th Street, Suite 1847
Rosslyn, VA 22209
(703) 841-3200
www.nema.org**

RESIDENTIAL FIRE SAFETY INSTITUTE

**8935 Vandegriff Way N.
Maple Grove, MN 55311
www.firesafefhome.org
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MODEL ORDINANCE TO CONTROL FALSE ALARMS FROM FIRE DETECTION AND ALARM SYSTEMS

AN ORDINANCE OF THE CITY OF _____ PERTAINING TO ASSESSMENT OF FEES FOR EXCESSIVE ALARMS; PROVIDING DEFINITIONS; ASSESSING A SCHEDULE OF FEES; PROVIDING A PROCEDURE FOR REPEAT OFFENDERS; STATING FINDINGS OF FACT CONCERNING FALSE ALARMS AND THEIR DETRIMENTAL EFFECT; PROVIDING FOR A PENALTY FOR VIOLATIONS EQUAL TO A FINE NOT EXCEEDING FIVE HUNDRED DOLLARS OR BY IMPRISONMENT FOR A TERM NOT EXCEEDING SIXTY DAYS, OR BOTH; PROVIDING FOR THE SEVERABILITY OF THE PARTS HEREOF IF DECLARED INVALID; REPEALING ORDINANCES IN CONFLICT; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City Commission finds that high incidence of false alarms and/or malfunctions causes a significant misuse of the manpower and resources of the fire department by causing the dispatch of units to the scene of a false alarm or alarm malfunction which renders them out of service and unavailable to respond to legitimate emergency situations; and,

WHEREAS, the City Commission finds that the continued high incidence of false alarms and/or malfunctions are a threat to the health, safety and welfare of the citizens of the City of _____; and,

WHEREAS, the City Commission finds that the revision of these procedures and fees for multiple false alarms and alarm malfunctions would serve the public health, safety and welfare.

NOW THEREFORE, BE IT ENACTED BY THE PEOPLE OF THE CITY OF _____

Section 1. The _____ City Code, is hereby amended to provide as follows:

ALARM SYSTEMS

ARTICLE 1. Definitions.

Sec. 1. As used in this ordinance, the following words and terms shall have the following meanings:

Alarm System means a fire alarm system as defined in Section 2.

Automatic telephone digital alarm communicator system means an alarm system which automatically sends a coded signal over regular telephone lines by direct connection or otherwise, indicating the existence of the emergency situation that the alarm system is designed to detect.

Fee means the assessment of a monetary charge payable to the City of _____, authorized pursuant to this Chapter, to defray the expenses of responding to a false alarm or alarm malfunction.

Owner means any person who owns the premises in which an alarm system is installed or the person or persons, who lease, operate, occupy or manage the premises.

Premises means any building, structure or combination of buildings and structures which serve as dwelling units, single-family or multi-family, or any other area within a building, structure or combination thereof which is used for any purpose other than residential, wherein an alarm system is installed.

Required operative alarm system means an alarm system, which the owner of a premise is required to maintain in an operative condition pursuant to statute, law, ordinance, rule or regulation of any governmental entity.

Serve shall mean hand-delivery by a representative of the fire department to the owner or authorized representative who responded to the premises. In the event the owner or authorized representative fails to respond to the premises within thirty minutes, serve shall mean placing the form or other matter in the United States mail, postage prepaid, addressed to the owner or authorized representative.

ARTICLE II. Fire Alarm Systems

Sec. 2. Definitions

Sec. 3. Notice of existence of fire alarm system

Sec. 4. Responsibility for fire alarm activation, owner response, fire alarm malfunction and corrective action

Sec. 5. Fee charges; multiple fire alarm malfunctions or false fire alarms

Sec. 2 **Definitions**

As used in this Article, the following words and terms shall have the following meanings:

Enforcement Official means the fire chief or his designated representative.

False fire alarm means the activation of any alarm, which results in the response of the fire department caused by the negligence or intentional misuse of the system by the owner or his employees, servants or agents; or any other activation not caused by heat, smoke or fire, exclusive of a fire alarm malfunction as defined below. An alarm is not considered a false fire alarm if the alarm is activated due to malicious causes beyond the control of the owner.

Fire alarm malfunction means the activation of any alarm which results in the response of the fire department caused by mechanical failure, malfunction, improper installation, or lack of proper maintenance or any other response for which the fire department personnel are unable to gain access to the premises for any reason, or are unable to determine the apparent cause of the alarm activation.

Fire alarm system means any mechanical, electrical or radio-controlled device that is designed to emit a sound or transmit a signal or message when activated or any such device that emits a sound and transmits a signal or message when activated because of smoke, heat or fire. Without limiting the generality of the foregoing, alarm systems shall be deemed to include audible alarms at the site of the installation of the detection device, proprietor alarms and automatic telephone digital alarm communicator systems. A single station (residential) smoke alarm shall not be deemed to be an alarm system under this chapter.

Fire alarm technician means any person who inspects, installs, repairs or performs maintenance on fire alarm systems.

Single-station (residential) smoke alarm means an assembly incorporating the detector, control equipment and alarm-sounding appliance in one unit operated from a power supply either in the unit, or obtained at the point of installation.

Smoke detector means a device, which detects the visible or invisible particles of combustion.

Sec. 3 Notice of Existence of Fire Alarm System

Every person who installs, owns, leases, possesses or operates any fire alarm system within the City shall notify the enforcement official of the existence of said alarm system prior to system commissioning. It shall be the sole responsibility of the company that is installing any fire alarm system to provide the system owner with a copy of the most current City alarm ordinance, a "Notice of Existing Alarm" form and a current copy of NFPA 72, National Fire Alarm Code. The Notice of Existing Alarm shall be completed by the owner and forwarded to the enforcement official prior to system commissioning. Notice to the enforcement official shall include the following information:

- (1) The name(s), address, business and home telephone number of the owner, lessee, operator, manager or person in possession of the premises wherein the alarm system is installed;
- (2) The name, address and telephone number of a minimum of two (2) persons who can be notified by the enforcement official, in the event of the activation of the alarm system, who shall be capable of responding to the premises within thirty (30) minutes, and who is authorized to enter the premises to ascertain the status thereof;

- (3) The date of activation of the alarm system:
- (4) When any of the information required in subsection (1) or (2) has changed, it shall be reported to the enforcement official by the owner within fifteen (15) days of such change:
- (5) The name, address and telephone number of the company contracted to service the alarm system.

Sec. 4 Responsibility for Fire Alarm Activation, Owner Response, Fire Alarm Malfunction and Corrective Action

(a) The responsibility for a fire alarm activation shall be that of the premises in which the fire alarm system is installed. A response to an alarm activation shall result when any officer or member of the Fire Department is dispatched to the premises where the alarm has been activated or learns of the activation of the alarm system(s), by any means whatsoever, and responds thereto by traveling to that premises. After responding to an alarm activation, the enforcement official shall notify any person identified in the notice required pursuant to Sec. 3(a) (1) of the activation of the alarm system and such person shall thereupon travel to the premises to ascertain the status thereof. Should the person notified fail to appear at said premises within thirty (30) minutes after being notified to do so, the City shall charge the owner of the premises a fee of seventy-five dollars (\$75.00). The officer or member of the Fire Department who responded to said premises shall serve the owner or authorized representative a "Fire Alarm Activation Report".

In the event of a fire alarm activation deemed by the enforcement official to be the result of a fire alarm malfunction, the owner will be served a "Fire Alarm Activation Report" by an officer or member of the fire department, indicating that the activation was deemed to be the result of a fire alarm malfunction. This would require the owner to return a completed "Affidavit of Service/Repair" within fifteen (15) days of said alarm activation which can verify, to the satisfaction of the enforcement official, that the fire alarm system in question has actually been examined by a fire alarm technician and that a bona fide attempt has been made to identify and correct any defect of design, installation or operation of the fire alarm system which was identifiable as the cause of the fire alarm malfunction. Failure to return an "Affidavit of Service/Repair" within said fifteen-day period, which is satisfactory to the enforcement official, will result in assessment against the owner of a fine of five hundred dollars (\$500.00) for the fire alarm malfunction.

Sec. 5 Fee Charges: Multiple Fire Alarm Malfunctions or Nuisance Fire Alarms

- (a) No fees shall be assessed for the first three (3) nuisance fire alarms at the same premises responded to by the fire department during each calendar year. Thereafter, the following fees shall be paid by the owner for each nuisance fire alarm responded to by the fire department at the same premises during said calendar year.

<u>Number of Nuisance Fire Alarms</u>	<u>Fee Per Nuisance Fire Alarm</u>
Fourth	\$100.00
Fifth	\$100.00
Sixth	\$100.00
Seventh and above	\$200.00

- (b) As to all fire alarm malfunctions responded to by the fire department, the owner shall be assessed a fine of \$500.00 unless he returned to the fire department an "Affidavit of Service/Repair" deemed satisfactory by the enforcement official. For those fire alarm malfunctions that the owner returned a satisfactory "Affidavit of Service/Repair", and such premises were equipped with a fire alarm system of one (1) to one hundred (100) system smoke detectors, alarm malfunctions during each calendar year shall be exempt from any fees in excess of the Administrative Fee Schedule set forth in this subsection. Premises having the fire alarm systems consisting of more than one hundred (100) system smoke detectors shall receive one additional exemption from the Administrative Fee Schedule as set forth in this subsection per calendar year for each additional one hundred (100) system smoke detectors or fraction thereof. In those cases in which the owner provided the enforcement official with a satisfactory "Affidavit of Service/Repair," the following administrative fees shall be paid by the owner for each fire alarm malfunction responded to by the fire department during each calendar year:

ADMINISTRATIVE FEE SCHEDULE

<u>Number of Fire Alarm Malfunctions</u>	<u>Fee</u>
Fourth	\$25.00
Fifth	\$25.00
Sixth	\$25.00
Seventh and above	\$50.00 each

Nuisance fire alarms triggered by any components connected to the fire alarm system shall be counted in computing the total number of nuisance alarms for purposes of this subsection.

ARTICLE III. GENERAL PROVISIONS FOR FIRE ALARM SYSTEMS

Sec. 6. Disconnection of fire alarm system.

Sec. 7. Appeal.

Sec. 8. Failure to disconnect or unauthorized reconnection of fire alarm system.

Sec. 9. Reconnection of fire alarm system.

Sec. 10. Automatic telephone dialing device or digital alarm communicator system.

Sec. 11. Newly installed fire alarm systems.

Sec. 12. Fire alarm system operations.

Sec. 6 **Disconnection of Fire Alarm System**

(a) Except for premises protected by a required operative alarm system, fire department enforcement officials are authorized to order the disconnecting or deactivation of any alarm system, by written notice to the owner of premises wherein an alarm system is installed, for any of the following reasons:

- (1) Failure to meet all requirements or pay the fees provided for in this chapter within fifteen (15) days of the charging of the fee; or
- (2) Failure of the owner to provide a written Affidavit of Service/Repair: required by this chapter; or
- (3) A fourth nuisance alarm or alarm malfunction at a premise for which a fee is charged pursuant to this chapter as the result of the failure of the owner to take corrective action to eliminate the cause of the nuisance alarm; or
- (4) The failure of a person notified pursuant to this chapter to appear within thirty (30) minutes after being notified to respond, if such failure to timely appearance occurs four or more times within a calendar year.

(b) The written notice to disconnect or deactivate shall be mailed to the owner and shall specify the date on which the owner shall be required to disconnect or deactivate the alarm system. This date shall be at least fifteen (15) days following the date of the notice. The owner may appeal the order of the enforcement official pursuant to Section 7.

Sec. 7 **Appeal**

An owner to whom a notice to disconnect or deactivate an alarm system was mailed, pursuant to Section 6, shall be entitled to appeal the order of the enforcement official to the City Manager or his designee. An appeal must be in writing, stating the reasons why the order to disconnect or deactivate should be withdrawn, and shall be made within fifteen (15) days of the date receipt of the notice to disconnect. The City Manager or his designee shall review the facts and circumstances and shall determine whether the owner has shown good cause why the order should be withdrawn. The City Manager or his designee affirms the order to disconnect or deactivate an alarm system, the owner shall have five (5) days following mailing receipt of the written decision of the City Manager or his designee within which to comply with the order. The appeal of an order to disconnect or deactivate shall suspend the effective date of the order until the City Manager or his designee has acted upon the appeal.

Sec. 8 Failure to Disconnect or Unauthorized Reconnection of Fire Alarm System

It shall be unlawful for any person to fail to disconnect or deactivate an alarm system which has been ordered disconnected or deactivated pursuant to Section 6 including those situations in which the City Manager or his designee affirmed the order to disconnect or deactivate; and it shall be unlawful for any person to reconnect an alarm system which has been disconnected or deactivated pursuant to the order of the enforcement official, unless reconnection of the alarm system is authorized pursuant to Section 9. Any person violating the provisions of this Section shall receive a penalty(s) and other administrative remedies provided for in this chapter.

Sec. 9 Reconnection of Fire Alarm System

Any order to disconnect or deactivate an alarm system may be rescinded by the fire department enforcement official upon a finding by said enforcement official that the owner of the premises has taken corrective action to remedy the cause of the nuisance alarms or alarm malfunctions at the premises. In making a request for such a rescission, the owner shall have the burden to show what corrective action has been taken and that same is sufficient to support a finding that the cause of the nuisance alarms or alarm malfunctions has been remedied. The enforcement official shall have the right to inspect the alarm system and test it prior to rescinding the order to disconnect or deactivate. Before any reconnection of an alarm system, after the order to disconnect said system, a reconnection fee of \$25.00 shall be assessed. The enforcement official shall not rescind an order to disconnect or deactivate if the owner has failed to pay any fee charged the owner pursuant to this chapter.

Sec. 10 Automatic Telephone Digital Alarm Communicator System

It shall be unlawful for any person to install, maintain, operate or use any automatic telephone digital alarm communicator system within the City unless such system is currently listed by a nationally recognized testing laboratory, and has been approved by the enforcement official.

Any person who violates the provisions of this Section shall be punished as provided for.

Sec. 11 Newly Installed Fire Alarm System

The provisions of this chapter shall not apply to any newly installed alarm system for a period of sixty (60) days from the date of the installation of that alarm system, but shall apply from and after the expiration of the initial sixty (60) day period following installation.

Sec. 12 Alarm System Operations

The City, its officers, employees and agents, shall not assume any duty or responsibility for the installation, maintenance, operation, repair or effectiveness of any privately owned alarm system, those duties or responsibilities being solely those of the owner of the premises. Additionally, it shall be the responsibility of the owner of the premises to silence an activated alarm and thereafter reset it.

Ordinances in conflict herewith are hereby repealed to the extent of such conflict.

This ordinance shall take effect immediately.